DOCUMENT RESUME

ED 164 863 08 CE 018 978

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TITLE Contradiction and Correspondence: An Analysis of the Relation of Schooling to Work. Discussion Paper 75-1.
INSTITUTION Center for Economic Studies, Stanford, Calif.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Aug 75
NOTE 42p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Educational Background; Educational Change; Educational Theories; Employee Attitudes; *Employer Employee Relationship; Employment; Employment Potential; Job Enrichment; Laborers; Manpower Utilization; *Occupational Aspiration; Organization; Organizational Change; Organizational Development; Organizational Effectiveness; *Relevance (Education); *School Attitudes; *School Industry Relationship; Underemployed; Vocational Adjustment; *Work Attitudes; Work Environment; Work Simplification

ABSTRACT

The world of work is composed of contradictory conditions which schooling tries to mediate through a reproductive process. The present organization of production based on wage-labor is inherently self-contradictory in that the interests of management and labor are directly opposed. School prepares individuals to deal with the types of peer relationships, authority figures, knowledge, and control over work content that they will eventually face on the job. This preparation, or correspondence of schooling to working conditions, facilitates workers' acceptance of the social and structural composition of labor. However, the mechanisms of this correspondence are beginning to break down, and a "crisis in education" is resulting. As jobs become more routinized and simplified to reduce costs and training time, school credentials are losing much of their meaning. No longer does a high level of academic achievement guarantee a high-paying, high-status job. As a result of this breakdown, workers are becoming increasingly disillusioned and cynical about the job market, and are applying pressure for more democratic, participatory forms of work organization. If such changes do occur in the world of work, then schooling processes must change in a corresponding fashion. (ELG)

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CONTRADICTION AND CORRESPONDENCE: AN ANALYSIS OF THE RELATION OF SCHOOLING TO WORK

by

Michael A. Carter

Discussion Paper 75-1
August, 1975

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Project: Educational Requirements for Industrial Democracy

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ABSTRACT

This paper outlines the relationships that exist between schooling and work processes. First the concepts of contradiction and correspondence are introduced. These concepts express the basic relations which exist between the institutions of schooling and work, and together provide the key to understanding how these institutions interact to reinforce and change each other.

In the second section of the paper we apply these concepts to a relatively concrete analysis of the actual relations that exist today in the United States between schooling and work. The basic organizational form of the work process -- i.e., the wage contract -- is seen as itself internally contradictory in that the interests of labor and management are inherently opposed within it. The problem which this situation creates -- the need to enlist labor's cooperation in pursuit of management objectives -- is viewed as having two possible solution strategies: the use of negative sanctions, tight supervision and dismissal threats, or the use of positive incentives affecting pay and advancement. In any concrete instance the dominant strategy used will depend on the relative risks and costs associated with the strategy, which in turn depend on the market position of the firm and the position of the job in a configuration of technological and social relations. Each of the solution strategies involve certain contradictions. The institutional forms and the content of schooling processes mediate these contradictions by exposing the child to relations which correspond to those that (s)he will encounter later on the job. However, schooling processes are increasingly unable to mediate some of the contradictions arising from the present organization of work. Indeed, the expansion of the schooling system at higher levels of education beyond the requirements of present job structures exacerbates some of these contradictions, and ultimately fuels worker demands for increased control over their productive activities.

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I. INTRODUCTION

All social scientific research must begin with a view of the world, or rather, a way of viewing the world. A basic organizing concept which informs our study of social institutions and social change is the centrality of the work experience. That is, we view the institutions and structural relations of the labor process as the center of gravity of the entire social structure. Ultimately, these institutions and structures of work pull the other institutions of society into line with their motion. Given this viewpoint, any understanding of other institutions in society must comprehend these not just as institutions in themselves, but must also grasp their relation to the institutions and structures of the workplace. This is especially true if we wish to understand how and why these institutions change, or what possibilities of changing them exist.

In particular, the dynamics of reform and change in the schooling process cannot be understood without understanding the relations of the schooling process to work processes. This paper analyses these relations utilizing the concepts of correspondence and contradiction. The first section discusses our methods of analysis, introducing these concepts and explaining their interrelationships. The remainder of the paper applies these concepts to develop a relatively concrete specification of the interrelationship of schooling and work processes. From this analysis the following conclusions emerge.

Contradictions within the existing structures of work processes are responsible for the current widespread worker discontent and problems of "labor discipline". Through their correspondence to workplace structures and relations, existing schooling processes prepare workers for their future work roles, and thus diffuse much potential discontent, or at least prevent

it from coalescing into unified class-conscious opposition to the capitalist organization of production. At the same time, the schooling system has overexpanded and increasingly produces more people with relatively high educational attainments socialized to expect nonroutine, high-status jobs than existing job structures can accomodate. This overexpansion is particularly difficult to halt because it results not merely from the dynamics of the schooling process itself, but from the role that schooling has played in mediating potential conflicts in work processes. For example, the expansion of schooling is taken as evidence of the ever improving equality of educational opportunity and prospectively, equality of economic opportunity. The message is that individuals must only seize the opportunity to acquire more education to extricate themselves from undesirable work circumstances. This correspondence of schooling portends increased demands by a more highly educated workforce for greater participation in decision making in production, and decreasing legitimacy in workers' eyes of existing structures of hierarchical control.

II. CONTRADICTION AND CORRESPONDENCE: A DEFINITIONAL AND METHODOLOGICAL DISCUSSION

The central organizing precept of our analysis is that the production process together with the structural forms and social relations under which it is carried out ultimately determine the other social institutions and practice in society. This statement is prior to our analysis; it is a method of viewing the "facts", of defining the "facts". Therefore it is not directly testable against objective fact; i.e., it is not refutable by contrary empirical facts because there are no facts independent of the statement itself.[1]

Our views on the centrality of the working experience and its associated institutions stem from the observation that a major portion of adult life is directly spent on the job and that the income earned there quantitatively limits the opportunities for nonjob activities and thus ultimately (though not directly) determines these as well. Thus our view is empirically reasonable, if not empirically refutable. And it is compelling as well because of the important questions this perspective opens to inquiry.

The structural forms under which production is carried on are not, however, immutable. For example, within the United States a transformation has taken place during the last 200 years from production characterized by small independent farmers, artisans, and shopkeepers employing only family labor to production characterized by large corporations and government bureaucracies employing thousands of wage laborers each performing specialized functions and organized in pyramidal hierarchies.[2]

Contradiction and Change in the Organization of Production.

In our view the sources of change in the organization of production inhere in contradictions internal to the organization of production itself. These contradictions may initially be latent, or temporarily mediated by

other institutions of society, but eventually they develop to a point where production can continue only if the structural forms under which it is carried out are radically changed. For a time, output and profits may be increased by dividing work into smaller tasks capable of more rapid repetition meanwhile relying on wage incentives to motivate workers. But once most of the workers who are regularly employed have attained a certain standard of consumption outside the job, their major consumption desire may become an increase of interest or leisure on the job. Once this point is reached, wage incentives cease to prevail as a method of extracting labor from these workers. This example illustrates how contradictions which are always latent may become manifest and operate as barriers only after material conditions in the economy have developed sufficiently to "uncover" them. Indeed, the very element in the production structure that ultimately is the barrier to increased productivity -- the relation of the worker to his work as a mere means to "individual" consumption -- initially was a factor in spurring the worker to increased industriousness.

But contradictions in the structure of production do not switch from a latent to a manifest state overnight; they develop gradually and in varying degrees among different groups of workers at different structural positions within the productive process. This pattern of slow and uneven development increases the possibility of using institutions outside the work process, namely schools, to mediate or suspend temporarily contradictions that are essentially rooted in the work process. For instance, boring, stultifying routines and authoritarian pedagogical methods in schools can condition workers to accept from the outset that work must necessarily be boring so that as adults, the workers are not so likely

to demand that their work be self-actualizing. On the other hand, both schooling and a multitude of media influences can socialize workers to heightened expectations and needs for material consumption. Thus, the schools in two distinct ways act to mediate the aforementioned contradiction in the work process. These mediating factors operate to postpone the time when workers become relatively satiated with commodities and begin to treat the job itself as a commodity.

Correspondence Between Schooling and Work, and the Mediation of Contradictions in the Workplace.

When we speak of "correspondence" between the schooling process and the work process we are referring to the mechanisms and the structures through which schools mediate contradictions in the work process and thereby contribute to the reproduction of existing structures and social relations on the job. Indeed, in our view the institutions of schooling as they exist today arose in response to the need to mediate the contradictions in workplace structures.[3] Moreover, the present form and content of these institutions are still largely determined by this objective need. For instance, the emphasis on individual achievement in school rather than on group learning is necessary to reconcile the ideology of equal opportunity with the reality of enormous and systematic inequalities in incomes by representing the resultant individual achievement differences as the source of the income inequalities.

While correspondence to existing production structures is the raison d'etre of schools and therefore the primary organizing principle we use to understand many aspects of their practice that would otherwise seem irrational or random, schools frequently and increasingly produce

outcomes that are dysfunctional to the production of existing relations of production. Thus correspondence not only arises out of contradiction but also develops new contradictions. For instance, the emphasis on achievement in schools leads ultimately to an undermining of the ability to cooperate with others, an ability that is critical in many production situations. Or again, the emphasis on educational credentials as signs of superior ability leads to a massive diversion of effort into the attainment of those credentials, rather than into developing the knowledge and abilities they supposedly represent. This behavior subsequently generalizes when the student enters the work force into a cultivation of appearances rather than a development of productivity.

Emergence of New Contradictions and Exacerbation of Latent Contradictions in the Production Process.

There are two major reasons why the correspondence of schooling processes to workplace requirements which mediates contradictions and helps reproduce existing structures and social relations on the job eventually break down. The most basic reason for the weakening of correspondence is that the existing hierarchical structures of production and their associated property relationships are inherently self-contradictory; they therefore require sets of attitudes, values, and behaviors, that are inconsistent. Thus attitudes of individual competitiveness and desires for individual advancement that hierarchical structures use to elicit the voluntary cooperation of subordinates with the goals and directives of superiors inherently work against the cooperation and teamwork necessary for efficient execution of these directives.[4] When schools grade on curves, they necessarily sew egotism along with competitiveness, necessarily

contradict workplace requirements even as they correspond to these requirements. (Of course, through organized sports and other extracurricular activities schools attempt to develop "teamwork" and allegiance to a productive unit larger than oneself and thus harness competitive egotism to the pursuit of corporate goals. But these activities are secondary to the main pursuits in schools and the contradiction remains).

A second reason for noncorrespondence of particular aspects of the schooling process to existing hierarchical structures is that schools are not directly controlled by private enterprise. Therefore, once established as formally separate institutions staffed by individuals paid out of public funds, rather than directly out of private profits, they acquire a logic of development of their own. This proceeds in part independent of, and even in opposition to, the needs of private enterprise. For instance, hierarchical production structures require schools to produce relatively great numbers of people who will docilely accept subordinate positions and relatively few people with the "credentials" and attitudes appropriate to high-status high-paying jobs. Yet, the schooling system propelled by parental demands for increased educational attainments for their children and trapped by its own public image as a provider of equal opportunity, has a tendency to overexpand and produce relatively too many college educated students. When this glut of college students cannot find high-paying, high-responsibility jobs, they must settle for jobs lower in the hierarchy. But, they will be more bored and frustrated in these jobs than if they had never attended college. Thus on an empirical level particular aspects of the schooling process do not correspond to the needs of hierarchical production structures and even contradict those needs. Schools are failing,

most noticeably by the expansion of schocling as evidenced by rising educational attainments, to mediate contradictions.

Analysis of Change Utilizing the Concepts of Contradiction and Correspondence.

The concept of correspondence, however, remains useful at an abstract level as a powerful key to understanding the logic of the system as a whole. It enables us to understand how the present system of hierarchical relations both at the level of school and work reproduces itself as a system independently of any self-conscious direction by individuals or groups of individuals. A particularly important insight embodied in the correspondence principle is the idea that an institution (e.g., the schools) is not in essence a thing in itself; its essence lies elsewhere, i.e., in its relations to the institutions and processes of work. The specification and understanding of these relations is therefore the key to understanding the schooling process. Even though ultimately we are interested in change and how to bring it about, we must know what we are trying to change. The correspondence principle directs our attention beyond the empirical institutions and practices of the schooling process to their fundamental reality which lies in their relation to the work process and its associated structures.

Considered by itself, however, the correspondence principle is an inadequate interpretation of the system of schooling and work relations. It gives us many insights into the unity of that system and into the mechanisms that facilitate reproduction of the system, but masks the contradictions and tensions within the system. And it is precisely these contradictions and tensions that augur change! Hence the concept of correspondence must be augumented by a concept of contradiction. Correspondence directs our theoretical version toward what is to be changed;

contradiction toward where it can be changed and is changing.

Let us summarize the conceptual and methodological world view underlying our analysis. Basically, we view the process of production together with its characteristic set of institutions and structural relations as the center of gravity for the entire set of social structures and processes. The forms and structures of work and schooling act and react upon one another, but the importance of the work process so much outweighs the importance of the schooling process that the motion of the former ultimately determines the motion of the latter. Put differently, the dynamics of work structures and relations can be largely understood in terms of their own movement, i.e., as a sequence of institutional responses to contradictions internal to the work process itself. Nevertheless, a concretely rich understanding of the ways in which internally generated contradictions in the work process appear on the surface of society, of the ways in which these contradictions are resolved, and of the changes to which they lead, requires an analysis of the schooling system and its correspondence and contradicitons to the work process. On the other hand, an understanding of the schooling system and its dynamics requires from the outset an understanding of its connections to the work process, although its dynamics cannot be understood solely in terms of these connections.

In addition to this concept of the centrality of work processes, the concepts of contradiction and correspondence also underlie our method. The concept of contradiction is the dynamic principle in our analysis. Any set of structures is said to be internally contradictory if it tends to produce by its own functioning conditions which hamper its own

reproduction. Such a situation sets up pressures for, and may eventually force, qualitative changes in those aspects of the set of structures that are responsible for producing the contradictory conditions. Similarly, two relatively autonomous structures are said to be contradictory if either produces conditions which hamper the reproduction of the other. Contradictions of this type generate pressures for change in both structures. However, reproduction of existing structures can proceed despite the existence of contradiction of both types. The possibility of reproduction in a situation of external contradiction depends on the degree of autonomy of the sets of structures in question. In situations of internal contradiction the possiblity of continued reproduction depends on the existence of structures, either internal or external, which mediate or temporarily suspend the contradiction.

This brings us to the concept of correspondence. Correspondence between two sets of structures is a major mechanism of mediating contradictions internal to the dominant set of structures. Indeed, the mediation of contradictions within the dominant set of structures is often what calls the subordinate set of structures into being, and in all cases determines the basic form that these subordinate structures assume. Thus a concrete understanding of correspondence is necessary in order to understand the subordinate set of structures, and an understanding of the incipient contradictions in the dominant set of structures is necessary to understand correspondence. Precisely because the subordinate set of structures by assumption constitute a separate set of structures, however, they possess a relative autonomy from the dominant set of structures which permits them to develop in part according to an internal dynamic, to develop internal contradictions, and even to develop contradictions to the dominant structures.

III. THE INTERRELATION OF SCHOOLING AND WORK

In order to clarify the basic relationships among the concepts on which our methodology is based, the discussion thus far has been very abstract. This section uses our methodology to derive a relatively concrete specification of the interrelation of schooling and work processes. This specification is still primarily theoretical, but provides a framework within which empirical studies can be situated.

The Work Process and Basic Contradictions.

From the previous discussion it follows that our analysis must begin with the structures and institutions of the work process, and must identify the salient contradictions within these structures. The most basic contradictions in work structures derive ultimately from the fact that at present production takes place for the purpose of making profits, not for the satisfaction of the consumption needs of workers or for the purpose of workers' job satisfaction. Of course, the worker toils in order to satisfy his consumption needs, and the present organization of production depends crucially on these needs to motivate the worker. But what must be emphasized here is that the existence of these needs nothwithstanding, no employer will hire a worker or continue to employ him unless he expects to earn a profit on the worker's activities. Thus production is for the purpose of making profits in the sense that production takes place at all only upon the expectation of profit.[5] The needs of the workers are structurally subordinate to the profit requirements of capital.

Not only are the needs of workers subordinate to profit requirements; they also are concretely opposed to those requirements as a direct consequence of the organization of production on a wage-labor basis.

The worker is paid a given wage. This wage payment is contingent upon the expectation that the worker will work hard enough and long enough to produce goods and services whose value exceeds the wage plus the cost of materials, depreciation, etc. But since the worker does not own or have any claim over what he produces, he has no direct interest in increasing his output. Indeed, to the extent that increasing his output necessitates expending increased energy, he has a direct incentive to minimize such expenditures (contingent upon keeping his job) and "save" his energy for activities outside the job. Therefore, from the outset, the wage-labor form of production pits the interests of the worker against those of the employer. This implies that once the employer has hired a worker and agreed upon a wage, he must have some means to extract labor from the worker. That is, no direct incentive arises out of the wage form that would cause the worker actually to supply the labor upon which the wage payment is predicated.[6]

Approaches to the Extraction of Labor Under Wage-Labor Organization of Production, and the Role of Schooling.

There are two general approaches to the extraction of labor. One method is to rely on tight personal supervision backed up by threats of dismissal. The second method is to enlist the worker's cooperation with the firm's goals by providing various sorts of indirect incentives. We now examine each of these methods in turn, and the interactions of schooling processes with each method.

Close Supervision and the Threat of Dismissal: The Secondary Labor Market. The method of close supervision coupled with a dismissal sanction was the dominant approach used to extract labor from workers until the

last decades of the nineteenth centruy. Even today it survives as the dominant method of control in the secondary labor market.[7] An examination of the characteristics of jobs in the secondary labor market suggests the conditions under which this approach to laborforce control is practicable. First, there must be few skills specific to the particular job, and what skills there are must require a very short learning time. Otherwise it will be very costly to the firm to fire refractory employees and train new ones. The costs to the firm in such situations include not merely the direct training costs and lost output during the time the new employees are learning their job, but also the potential permanent loss of market share as the firm's competitors rush to fill the orders it can no longer supply. Therefore, the more important job-specific skills are to firm productivity, the more costly and risky is a pure "hard line" approach to labor force discipline.

A second objective circumstance which renders this approach excessively costly and risky is a high degree of mechanization of production. Where production is highly mechanized, detection of poor performance and attribution of the poor performance to particular individuals may be difficult and involve time lags during which large losses in output (in the form of defective goods as well as below-quota production) would be incurred. Moreover, in situations where each worker is in contact with large amounts of capital equipment, and where various equipment is interconnected so that a breakdown at any point in the production process causes a bottleneck which can idle most of the plant for hours, the sabotage potential of each employee is very high. It is thus very risky to antagonize the work force through tight supervision and frequent firings when job-specific skills

are important, where production is highly mechanized, or when an individual employee's actions and decisions can affect sizeable capital investments.

Correspondence of Schooling Processes to Relations of Production in the Primary Labor Market. Before describing the relatively sophisticated mechanisms that have evolved to control the work force and secure their voluntary cooperation with the goals and objectives of management, we will discuss how correspondence operates in the context of the secondary labor market, where direct supervision is still the dominant method of control. These are jobs that require little advanced education or job-specific training and ones in which the worker uses little capital equipment so that job stability is an unimportant attribute of firm productivity. In short, these are jobs that virtually anyone can do. Wages on such jobs are low, both because of the large potential supply of laborers and because physical productivity is necessarily low given the absence on these jobs of either capital or responsibility for capital. Therefore, given the low wages and poor job security these jobs involve, few people would do them if they had any real alternatives. Yet such jobs continue to form a quantitatively significant proportion of all jobs -- even in the technologically advanced U.S. economy.[8]

It is evident that as long as our economic and social system can produce a sufficiently large number of people who must work to support themselves and their families, but who have no real alternative to employment in the secondary labor market, competition among these people will permit employers to pay low wages and rely on threats of dismissal to enforce discipline. But there is a problem for the system as a whole of producing and reproducing in sufficient quantities people who feel that

they must accept such jobs and the working conditions they entail; that they have no hopes either as individuals or as a class of acting to improve their own situation. This problem is complicated by the myths of mobility and equal opportunity.[9] These myths suggest that everyone has a stake in this society and that all benefit in the same way (if not in the same amount) by increased production. To broad segments of the work population these myths appear plausible as they personally experience rises in material living standards. But for those confined to secondary labor markets, this experiential correlate to the myth has been absent. Their reality has been low wages, insecure working conditions, and harsh living circumstances.[10] The threat that this reality poses to the system is the threat of massive social unrest and violence resulting from frustration and envy, from a perception that "the system" is responsible for the reality, or from a combination of these. That is, the contradictions that hierarchical wage-labor systems engender in the secondary labor market appear as incipient generalized violence. The concrete problems that such systems must solve is the mitigation of the frustration and envy of those who are trapped in such jobs while sustaining the ideology of open and mobile society. The role that the schools play in solving this problem is to provide "objective" evidence in the form of standardized test scores, grades, and years of education completed that demonstrate that large ability (and presumably productivity) differences exist among individuals. The structural failure of the system to provide meaningful, remunerative work for a significant percentage of the population thus appears to the child through his/her schooling experience as a failure of ability or motivation.[11] The child's experience of failure in school corresponds to his/her subsequent "failure"

at the workplace. We are not suggesting that schools deliberately fail particular students. Rather, that they do little to overcome the differences in cognitive background, self-image, and modes of self-presentation with which children from low-income families enter school.[12] Indeed, these initial disparities in cognitive styles and modes of self-presentation may well be so large that individual teachers or principals, no matter how well motivated, cannot overcome them. The point is that the schooling system with its "objective" tests distracts attention away from the objective effects which real poverty exercises on children. When they emerge from twelve years of schooling with an eigth grade reading level, no one, presumably can blame the class structure of society or the hierarchical structure of production for their failure to find decent jobs. It is merely a question of their own failure to attain the ability standards necessary to function productively on complex, or responsible jobs.[13]

While the schools succeed in producing a large number of workers with the low level of cognitive achievement that restricts them to secondary employment, while some of these workers may to varying degrees become reconciled to the notion that they can expect no better jobs, while some may even come to blame themselves and not "the system" for their failure, contradictions remain. Most evidently, the basic sources of frustration and rebelliousness -- low wages and poor working conditions -- are not changed by schools. The children who are destined for these jobs learn while still young that the schools, whatever they might do for others, won't help <u>them</u> to get better jobs. Hence, the whole schooling process is at best frustrating, at worst a constant conflict with disciplinarian teachers and truant officers. The schooling experience of these children

thus comes to mirror their later work experience; the conflicts and frustrations of the latter are reproduced in the former. Though the ultimate source of these conflicts -- the hierarchical wage-labor structure of production -- is obscured by the schools, they are powerless to mitigate the hostility, bitterness, and violence engendered by confinement within the secondary sector.

Hierarchy and Incentive Systems: The Primary Labor Market. We now turn to the primary labor market comprised of jobs where the level of either job-specific skills or of responsibility for large amounts of capital is high and, consequently, regular reliance on a dismissal sanction to extract productive performance from labor is excessively risky and costly. In such situations a variety of structures have emerged within the organization of the work process itself which attempt to mediate the contradictory interests of labor and capital. The general effect of these structures is to increase the apparent material advantage to the individual worker of maintaining a steady high level of productive effort and cooperating with the goals of management. At the same time, these structures serve to distract the attention of workers from the overall distinctions between themselves as a class and capitalists as a class, by interposing structural distinctions among fractions of the working class itself. These institutional structures fall into two groups. One group is associated with jobs whose content can be more or less routinized; the other is associated with jobs where unique situations regularly arise requiring decisions and actions not specifiable in advance.

The content of jobs that can be routinized is specifiable in a set of rules and standard operating procedures. The major problem of management

(apart from designing the standard operating procedures) is to secure conformity to them. By their very nature, these jobs afford the worker little intrinsic satisfaction. Hence the motivation to perform them must come from outside the job, from its "circumstances" rather than from the job itself. In this situation the dominant method of eliciting steady high levels of performance and output has been to arrange the various jobs in hierarchical structures. Jobs higher in the hierarchy not only have higher pay, but also require less physical effort or less constant concentration, and give the worker more autonomy over his actions while on the job. They may also involve more responsibility or slightly higher levels of skills; but these are not necessary conditions.[14]

The major point is that jobs higher in the hierarchy are more desirable on virtually every criteria. Access to these coveted jobs is determined generally on a seniority basis -- not on the basis of productivity. Nevertheless, a regular high level of productivity must be maintained on jobs at the lowest level of the hierarchy if the employee is to attain seniority. Thus this scheme holds out to the worker the promise of relatively easy work at increased wages in the future, if only he/she works hard, follows rules and doesn't "rock the boat." Although management must pay higher wages to those few workers at the top of the hierarchy than it would if workers were allowed to compete for these jobs; it recoups its losses in terms of increased productive effort and reduced hostility on the part of the bulk of the workers who are located in the more alienating, more exploited jobs at the bottom of the hierarchy. Viewed from this perspective, these promotion patterns and relative wage structures constitute a sophisticated mechanism for extracting a regular high level of labor from the labor force, and at the same time sustaining the appearances of

equal opportunity and of individual self-determination.

Before we discuss the contradictions inherent in these institutional structures, let us describe briefly the institutions for extracting labor on nonroutinized jobs.[15] The critical feature of such jobs from the standpoint of management is that they require that the employee make decisions and take actions which can neither be specified in advance nor supervised directly. Whereas routinized jobs require adherence to the rules and hard work to meet standards, nonroutinized jobs require internalization of the rules and creative application of effort and expertise to the concrete problems of the firm in earning profits.

Because the decisions and actions of even a single worker in such a job can have potentially substantial direct and indirect effects on profits, individual ability and skill differences are more directly rewarded in terms of wages and promotion opportunities than they are on routinized jobs. Although wages rise regularly with seniority on these jobs, there is substantial competition between firms for employees who perform exceptionally well, and younger employees are regularly promoted past older employees whose productivity has peaked. Thus an individual's power, income, and status are fairly closely linked to the firm's profits. However, the wage structure itself is relatively fixed and unresponsive to the potential supply of qualified employees. Since these jobs are critical for profits, it is much more important to get and hold someone "good" in the job than it is to pinch pennies on wages. Despite the individual competitiveness engendered by these arrangements a camaraderie exists among employees in this sector. Even when a firm is in such serious financial difficulty that it must lay off some of these employees, it deals with them gently, giving

them substantial severance pay, long notice, etc. Moreover, during noncrisis periods employees who have once performed well but whose productivity has sagged are often "carried" by the firm for a substantial length of time. These institutional arrangements combine to give individuals in this sector a strong sense of identification not only with the profitability goals of their present employer, but also with the general values and methods of hierarchical organization of production.

While the institutions just described mediate to some extent the basic antagonisms between labor and capital within the primary labor market, they still contain latent contradictions and impose requirements on schools with respect to both skill and value transmission. The most salient contradiction remaining within the routinized segment of the primary labor market is that the job-ladder and wage-incentive structures there provide the employee with only an indirect interest in maintaining a high level of productivity. Indeed, all that is necessary from the employee's point of view is to maintain the appearance of high productivity.

The very fact that the jobs are routinized leaves the employee's mind largely free to devise schemes to "cheat" the system and use time spent on the job for his own purposes. Although the concrete possibilities for enacting such schemes vary from job to job, and management attempts systematically to design plant and equipment layouts to minimize the possibilities for "cheating," -- pilferage, gold bricking, etc. -- the contradication remains. These schemes absorb the creative energies of the employee that cannot find outlets in the routinized activities of the job itself. It is important to note that this sort of cheating is normally associated with an individualistic, instrumentalist orientation toward the job. As such, it

represents an acceptance of the hierarchical wage-labor system and a determination to maneuver within it for one's own benefit. Hence, such activities are not as threatening to this system as concerted class-consciousness opposition would be. Nonetheless, in the context of competition among capitalists of different countries, the rise in production costs that ensues when such cheating becomes generalized and accepted behavior is a serious matter and directly threatens the markets and power of capitalists in that country.

In the primary nonroutinized sector the major contradictions are between competition and cooperation, between maintenance of friendly relations with fellow workers and making profits for one's employer.[16] That is, those who hold the nonroutinized jobs within a firm -- the engineers, analysts, and management personnel -- must cooperate with each other in exchanges of information and in executing and enforcing directives. Yet the individualist competitive reward structures in this sector encourage withholding of information and ideas until the individual thinks he/she can reap full benefit from them. Each of the separate branches and departments within the firm seeks to misrepresent its situation to obtain more resources, funds, and personnel for itself. Moreover, those how hold these nonroutinized jobs must constantly take actions and make decisions on the basis of profitability criteria. Given the basic antipathy between the interests of capital and labor under the wage-labor relation, this means that employees in the creative sector must constantly exercise their creativity in ways that increase the amount of labor extracted from fellow employees. Thus employees in this sector must constantly take actions that isolate them from and antagonize other workers. The pressures generated by this situation, on top of the pressures to produce and beat out one's competitors render even

these high-paying, high-status jobs alienating. Therefore, despite the institutional structures of primary labor markets, contradictions remain within both the routinized and the nonroutinized segments, although the concrete forms in which the contradictions appear vary between the two segments.

Correspondence of Schooling Processes to Relations of Production in the Primary Labor Market. We turn now to examine the correspondence of the schooling process to the organization and content of work within the primary labor market. More important, we focus on where and how correspondence breaks down and emergent contradictions shape the changing relationship between schools and work. Just as we have earlier seen the increasing inability of schools to diffuse the hostility and incipient violence that conditions in the secondary labor market generate, so also we see here their inability to mediate the conflicts arising out of the structures specific to primary labor markets.[17]

Through the end of high school the schooling process typically involves the performance of boring, highly structured, fragmented tasks assigned by the teacher -- a figure who combines attributes both of "the boss" and "expert." In this sense the work content of schooling mirrors the work content of jobs. The relation of the students to the teacher resembles the relation which primary routinized workers have to management and to engineering and scientific personnel. The teacher assigns them their tasks, supervises their performance, determines their grades and promotability. However, the teacher's authority to extract "labor" from the students derives not just from hierarchical relation to them, but also from superior knowledge and expertise. Thus in technical, intellectual

matters the teacher is always assumed to be infallible. It is very important to inculcate in students this belief in the teacher's superior knowledge and intellectual attainment so that they come to accept his/her control of the work content of their schooling as being in their own best interests despite contrary impulses.

The interrelationships among the students in the schooling process also replicate their relationships with one another on the job. There is a constant emphasis on the individual, on individual achievement or individual accountability, but the broad majority of students are promoted each year regardless of individual differences in performance. Only those students who seriously violate standards of conduct or attendance fail to graduate with their peers. Hence, while students are never taught to work cooperatively or to help one another, and while they are imbued with an individualist perspective, most of them are not particularly competitive about their academic performance. Only among those students who are near the top of the grade distribution and are destined for college and jobs in the nonroutinized professional and scientific sector are competitive attitudes towards grades and studies inculcated.

The general skills taught at this level include not only literacy and computational skills, but also skills in following and executing instructions, and skill in managing one's time in accordance with a clock. While general analytical skills and skills in symbolic manipulation are developed to some extent during these years, little attention is paid to the creative application of these skills to realistic problems and critical use of the skills is discouraged (i.e., in the task of problem identification). Textbooks, like the teachers, are always assumed to have the correct answers.

History, civics, and social science courses consist of uncritical presentations of U.S. history and institutions as the progressive realization of the actions of free individuals and democratic processes. Correspondingly, "science" is pictured as the universal good; its attainments the result of the progressive unfolding of human knowledge.

In sum, in primary and secondary schools the bulk of children receive practice in coping with situations structurally similar to those encountered in the routinized sector of the primary labor market. Social relations with the teachers and peers, promotion patterns, content and structure of tasks all have qualitatively similar analogs on the job. Basic cognitive and analytical skills are imparted, but their use is confined to increasing ability to digest information, understand complex instructions, budget time, etc. The critical intellectual faculties are neglected and their spontaneous use discouraged during this phase of schooling. Most important, schools attempt to impart a respect for expertise, particularly expertise learned in school and evidenced by degrees and technical language. The emphasis is always on the expert and on science as universal benefactors against whose cumulative wisdom and knowledge the contrary experience of the average layman cannot hope to understand.

Once the process of schooling at the lower levels has inculcated this respect for expertise, college and postgraduate programs train a select few to become the "experts": the technical, professional, and managerial workers who will hold the high paying nonroutinized jobs. The students who reach this level have in general already demonstrated by earning high grades not only that they have the analytic abilities necessary for nonroutinized jobs, but also that they are willing to sacrifice some

popularity among their peer group in order to achieve. In college, although the academic competition and its associated pressure intensifies, a sense of membership in an elite group is cultivated. While the student faces constant pressure to do more, perform at a higher level, he/she also gets the feeling of having "arrived," and expects to assume a high-paying, high-status job as a matter of course. This feeling of being part of a leadership elite is communicated not only in addresses by the college president, but directly in the curriculum. For example, assignments now read, "How would you advise the chairman of General Motors...?"

In addition to reinforcing these self-images of membership in an elite group, culturally and intellectually superior to those with only a high school education, college also develops the cognitive abilities and work attitudes necessary for performance of nonroutinized jobs. Most obviously, task assignments are much less structured in college, and there is much less direct supervision on a daily basis of actual work done although the volume of material to be covered increases and the indirect pressures to produce intensify. In addition to cultivating the self-discipline to work under such circumstances, college also hones the ability to reduce complex situations to sets of symbols and to manipulate those symbols to find "solutions" to problems. These latter abilities are intimately bound up with the legitimating ideology of technocracy. This process is most evident in the training of students to prepare mathematical representations of complex social, economic and political processes in order to analyze a problem and develop solutions. The fact that problem identification hence the solutions posed are conditioned by the mathematical techniques employed receives scant attention. For example, mathematical

techniques are best suited to analyze equilibrium conditions or slight deviations therefrom as opposed to situations of conflict and large social change.[18]

While the solution to many technical problems requires the compactness of thought made possible by symbols, many problems that workers in the nonroutinized sector face are largely social and involve conflicts of interest between labor and capital. The reduction of these social problems to symbols and their subsequent solution on this level obscures the fact that the solutions taken reflect the interests of capital and injure the interests of labor. By way of illustration, the design of technology involves issues of work satisfaction and control over production on which workers' interests diverge from those of capital. But since the entire situation is enshrouded in mystifying symbols, the class interests of capital (i.e., the resolution of the work process into small standardized units and the minimization of the time required to perform the sum of these units) assume in the eyes of the industrial engineer the appearance of efficiency and scientific progress.[19] Associated with the development of skill in symbolic manipulation is a strengthening of the respect for technical expertise and division of labor, and a reinforcement of the belief in its objectivity and value neutrality. Thus, for example, the scientist learns that his job is to develop atomic power; its use is to be decided by the politicians.[20]

Finally, the ability to use critical intelligence to perfect the operation of existing structures is developed. It is not enough for the worker in the nonroutinized sector to follow "the rules" or even to internalize them. He or she must be able to redesign the rules so that

they achieve their ends more surely and efficiently; and for this critical abilities must be developed. However, these abilities must be exercised only within the narrow confines and not extend to a critical analysis of the functioning of the system as a whole. In this regard the particular patterns and methods of symbolic manipulation learned in each discipline, and the respect for expertise and division of labor which is generally inculcated in college, serve to bound the domain over which the expert will let his critical faculties range. Thus college and postgraduate training exposes students to work situations that correspond to those encountered on nonroutinized jobs, develops the general cognitive skills and particular technical skills necessary to function effectively on these jobs, and heavily reinforces the ideologies of meritocracy and technocracy which legitimate the antiworker nature of the actions that students will have to take as employees.

Despite the correspondences just discussed between the particular stages of the schooling process and various labor market segments, contradictions remain and create pressures for structural change in both schools and in firms. Most evidently, primary routinized and secondary jobs continue greatly to outnumber primary creative jobs while increasing numbers of students are earning college and advanced degrees. This situation has led to a legitimation crises. It is increasingly difficult to sustain the myth that those in the high-paying, high-status jobs are there because of superior ability when many individuals hold college credentials. But this is not the most serious aspect of the crisis. More important, increasing numbers of students who have been socialized through college education to think of themselves as "experts" and to expect nonroutinized high paying

jobs are being forced to accept subordinate, routinized jobs. This frustration of expectations is a potentially explosive situation which directly threatens the routinized structure of the bulk of jobs today.[21] The regular but relatively slow mobility patterns of the routinized sector will not satisfy these workers. They will not settle for work that is a mere means to a living. They have come to expect more control over the conditions of their work, to make decisions, and by making the right decisions, to rise rapidly.[22]

A similar contradiction is potentially inherent within the hierarchical structure of the routinized sector. That is, if the rate of growth of the economy permanently slows down from its post World War II pace, the movement of employees up the seniority job ladders must necessarily slow down as well, leading to a situation of frustrated expectations. Moreover, the slower the growth rate of the economy as a whole, the greater will be the number of overeducated individuals crowded into the primary routinized sector (leading in turn to new primary sector workers with mere high school credentials being de facto thrust down into the pool of secondary labor through an inability to find jobs in the primary sector). The glut of overeducated workers will arise not merely because of the slower growth rate of high-level jobs, but also because of a prolongation of education due to a reduction of alternative wage-earning opportunities.[23]

This last factor is important to bear in mind when analyzing the impact of the present economic crisis on demands for more fulfilling, interesting work. Quite naturally, when output and employment suddenly dip, the first reaction of workers' whose jobs are threatened is defensive, i.e., the focus of their agitation shifts to job- and wage-guarantees. Job

content and work-control issues slide into the background. However, viewed from a long-run perspective, the crisis contributes to the oversupply of workers educated to expect high-wage, high-status jobs. Workers displaced from their jobs pursue more education to improve their job prospects conditioned on holding certain educational credentials. As a consequence, dissatisfaction with the conditions of work will reassert itself with renewed force as the state of the economy improves because adverse economic conditions encourage further expansion of schooling. In this way the present economic crisis is heightening the most salient contradiction between the educational process and the structure of workplace requirements. It is increasing the structural base on which worker demands for more control over their jobs is predicated, even at the same time that it dampens the immediate demands for worker control.

General Contradictions Which Schools Cannot Mediate.

Our analysis also points to other potential contradictions between schooling processes and workplace requirements which, though not as immediately related to issues of work content and structure, still augur increasing discontent both in schools and workplaces. Indeed, it may be more accurate to describe these as contradictions imminent within the present structure of work relations, which the schooling process cannot mediate but can only exacerbate. The most salient of these antagonisms can be grouped under three headings: materialism vs. morality, competition vs. cooperation, egotism vs. sociality. In order to function smoothly, the production process requires that the workers be honest, cooperative, and place the welfare of a wider social unit ahead of their own; firms in primary labor markets cater to the individualist, materialist, competitive impulses of individuals in

order to pit laborers against one another and enlist the individual cooperation of each with the goals of the firm. Schools attempt to mediate this contradiciton through extoling morality, cooperation, and help-thy-neighbor. But the structural correspondence of schooling institutions to labor market structures, the replication in the former of peer and authority relations in the latter, contradicts these principals in its very operation. Moreover, the greater the number of students with college aspirations and education relative to the number of high-paying jobs, the more fiercely the competitive struggle will rage within schools and the more obvious the gap between the ideology schools preach and the reality they signify will become. Thus as presently structured, schools can only reproduce at an earlier and more formative age the cynicism, materialism, and indifference to the social consequences of one's actions that present relations of production foster.

IV. SUMMARY NOTE ON METHODOLOGY AND PRINCIPAL CONTRADICTIONS THAT PORTEND CHANGE IN THE RELATIONS OF SCHOOLING TO WORK.

The relations between schooling and work processes, and the dynamics of change within these processes are complex. In order to interpret these complex relations we introduced the concepts of contradiction and correspondence.

A process or institution is self-contradictory when it tends to produce by its own functioning conditions which hamper its own reproduction. When such a situation occurs, pressures for change in the process or institution in question are generated. The present organization of production based on wage-labor is inherently self-contradictory in that the interests of management and labor are directly opposed. Management seeks to extract the maximum amount of labor for a given wage (in part, as a consequence of competitive pressures from other capitalist enterprises). The wage payment is contingent upon the expectation that the workers will produce goods and services whose value exceeds the wage plus the cost of materials, depreciation, etc. But since the worker does not own or have any claim over what he produces, he has no direct interest in increasing his output and acts to limit the work he does at a given wage. The frictions caused by the ensuing struggles over wages and work conditions are a continual threat to interrupt the production process, and in extreme cases, jeopardize its basic structure. We have described a variety of institutions that have arisen historically within the labor process itself, that smooth over these frictions, segment workers into various groups, and enlist the voluntary cooperation of strategically important or difficult to replace workers with the goals and methods of management through various cooptative salary and promotion schemes. Despite these institutions, however, the basic contradiction remains, but manifests

itself in less direct forms.

Correspondence is defined as a relation between two processes which mediate contradictions in the dominant process, and thereby facilitates reproduction of the structures and institutions of that process. The need to play this mediating role is what ultimately determines the form of the institutions and structures in the subordinate process. Thus the schooling process mediates incipient contradictions in the labor process by replicating the relations to peers, authority figures, knowledge, and control over work content that students will subsequently face in their work lives. More particularly, the relations within each of different tracks and levels of schooling correspond approximately to the relations within the different segments of the labor market. The early and continuing subjection to these relations makes them appear natural and inevitable, and thus helps to prepare the individual for (and reconcile them to) their position within them. This differential socialization to competence is most apparent in the contrasting schooling experience at any given grade level of the affluent as opposed to the poorest in our society. The relations within college, graduate school and their preparatory tracks attended by upper SES children correspond to relations within the primary creative segment of the labor market. While the schooling experience of inner city youth in grammar school and high school prepare them for the secondary labor market. The relations of high school, junior college and nonelite four year colleges experienced by middle SES students correspond by and large to the primary routinized segment.

As long as schools are functioning so as to facilitate reproduction of the existing social and structural relations of the labor process the

concept of correspondence predicts that little significant change will occur in schooling processes. However, our analysis suggests that the mecnanisms of correspondence are breaking down. The most salient breakdown is the overexpansion of the schooling system at higher levels relative to the requirements of existing job structures for highly educated workers with a capacity and desire for responsible decision making roles. At the same time, minority students and students from inner-city high schools increasingly recognize that the schools are not the key to mobility for them and become cynical and hostile. Our analysis thus locates the source of the much discussed "crisis in education" in the breakdown of its correspondence mechanisms -- a breakdown which is rooted in (and reacts back on) a crisis of reproduction of existing relations in the workplace.

The logic of cost minimization in a hierarchically organized and controlled production process dictates, however, that as many jobs as possible be routinized and simplified so that more easily replaceable workers with less training at lower salaries can be hired. This trend implies a stagnant or even dwindling supply of high paying, responsible jobs relative to demand except when the overall growth rate of the economy is high.[24] In this context, the use of schooling credentials to ration access to these increasingly scarce, high-paying, high-status jobs -- i.e., to represent this assignment of jobs as the outcome of individual differences in ability and effort — has backfired. People have believed that by studying hard anyone with sufficient ability could get ahead thus fueling a tremendous expansion of the schooling system. Now, they are only to find that in a hierarchically organized production process not everyone who registers the appropriate achievement level can get ahead. This situation results in

many workers with aspirations to primary creative jobs being forced to accept routinized jobs thereby experiencing disillusionment and cynicism with the system of production. We hypothesize that the decreasing legitimacy of existing workplace hierarchies coupled with the frustration of expectations derivative from the oversupply of educated workers will result in increasing pressures over the next decade for more democratic, participatory forms of work organization.

If these pressures do force large structural changes in the forms of work organization and in the social relations of the work process, then our correspondence concept predicts that forces will be generated to change the content and structure of schooling processes in corresponding ways. By studying the operation of existing mechanisms of correspondence and by identifying the structural elements of industrial democracy[25] that specifically distinguish it from present organizations of production, we gain insight into the ways in which schooling processes must change in order to correspond to democratic work structures and to facilitate change in that direccion.

FOOTNOTES

1. Indeed, in our view all thought is founded on such organizing precepts and thus in principle untestable against empirical observation. Theories change not because they are refuted by the "facts" but because they prove inadequate to solve practical problems. Unfortunately, we cannot explore this epistomological position here. Thomas Kuhn (The Structure of Scientific Revolutions, 2nd edition, Chicago: The University of Chicago Press, 1970) treats this problem at some length. He, however, lays more emphasis on theoretical inadequacy (i.e., the accumulation of anomalies) rather than practical inadequacy as a source of change in organizing precepts.

2. See Martin Carnoy, "Capitalist Change and the Changing Structure of Labor Markets" (Palo Alto, California, Center for Economic Studies, August, 1975) (mimeo) for a more detailed summary of these changes in the organization of production.

3. See Samuel Bowles and Herbert Gintis, Education in a Capitalist Society (New York: Basic Books, 1975) (forthcoming) for a summary of these arguments.

4. See Herbert Gintis, "Towards a Radical Theory of the Firm" Discussion paper No. 328 (Cambridge, Mass., Harvard Institute of Economic Research, October, 1973) for a discussion of the use of job-ladder structures to enlist worker cooperation with management objectives.

5. Obviously we are speaking here only of the private sector. The inclusion of the government sector in the analysis while desirable, poses a number of problems that will not be taken up here.

6. This observation is discussed in more detail in Gintis.

7. Segmented labor markets are labor markets differentiated by the nature of wage and benefits structure, the degree of job stability, the existence of career ladders, etc. According to segmentation theories, most jobs in the economy can be grouped into one of three major segments -- the primary independent, primary subordinate, or secondary labor market segments. Each segment requires a different set of worker traits, and, as a result draws upon different pools of workers. The distinguishing characteristics between segments are as follows:

   The primary independent sector comprises jobs in which the work is nonroutinized, nonmenial and involves decision making that affects workers in subordinate layers of the hierarchy. The nature of tasks in this sector precludes direct supervision by superiors, hence, the specific substance of productivity in this sector is the ability to do what one would have been told without being told. This requires acceptance and internalization of corporate norms.

   Jobs in the primary subordinate segment consist of routine tasks involving little decision making. The vast majority of jobs in the

public sector bureaucracies and most production jobs in the monopoly sector of the economy fall under this heading. The chief characteristics required of workers in this sector are dependability, a rules orientation, and responsiveness to authority. In short, conformity to externally imposed norms, rather than internalization of norms is the substance of productivity in this sector.

Jobs in the secondary labor market segment require the minimum of either general or job specific skills. These are the jobs with the lowest status, lowest wages, and least secure working conditions. In short, these are jobs which anyone could do, but no one would do if they had a choice.

For further explanation of segmentation theory see Michael A. Carter and Martin Carnoy, "Theories of Labor Markets and Worker Productivity," (Palo Alto, California, Center for Economic Studies, August, 1974) (mimeo).

8. See Harry Braverman, Labor and Monopoly Capital (New York: Monthly Review Press, 1974), Chap. 16, for evidence of the continuing importance of such menial jobs in the overall job structure. There he reports that there are over 12 million workers in menial service and retail trade occupations who in 1971 received an average salary of only $91 per week.

9. See Samuel Bowles, "Unequal Education and the Reproduction of the Social Division of Labor" in Martin Carnoy (ed.), Schooling in a Corporate Society (New York: David McKay Co., Inc., 1975); Samuel Bowles, "Schooling and Inequality from Generation to Generation," Journal of Political Economy, May/June 1972); Samuel Bowles and Herbert Gintis, "I.Q. in the U.S. Class Structure," Social Policy, January/February 1973; and Jerome Karabel, "Community Colleges and Social Stratification," Harvard Educational Review, November 1972.

10. Bennett Harrison, "Education and Unemployment in the Urban Ghetto," American Economic Review, Dec. 1972, pp. 796-812.

11. The structural relation of schooling experience to subsequent labor market experience for women is very complex and does not exactly replicate the relation that obtains for men. For instance, many women achieve good grades, graduate form high school, and still obtain only secondary jobs. To understand the relationship of women to existing job structures we must consider not only the structure and ideology of the schooling but also the structure and ideology of the family. To avoid confusing the analysis with too many details we have ignored the circumstances particular to the experience of women. The analysis of women's socialization is a separate area of study under the research grant which sponsored this paper.

12. Fieldwork currently being performed in schools by the Educational Requirements for Industrial Project members will analyze concrete differences in pedagogy, expectations, etc., between schools in high and low SES areas.

13. See J. McVicker Hunt, The Challenge of Incompetence and Poverty

(Urbana: University of Illinois Press, 1969), for an example of this attitude. Interestingly, Hunt is not a right-wing ideologue but believes that "society" must intervene to create "competence" among the poor.

14. We must analytically distinguish the technical division of labor which tends with the development of technology under the auspices of capital to fragment into a few highly skilled jobs and a large number of routinized jobs from the social division of labor which comprehends not only these differentiations between jobs but also the institutional mechanisms, relative wage structures, and promotion ladders that regulate the allocation of labor to the various jobs. At this point we are concerned with explaining the functions of the institutions associated primarily with the social division of labor. Historically, of course, both processes occur simultaneously and both appear to management as complementary methods of cost reduction and labor-process control.

15. We exclude from our analysis of nonroutinized jobs traditional craft jobs such as plumber, carpenter, etc. These are in a sense remnants of an earlier organization of production based in an era before the systematic introduction of high technology and standardized production methods. Of course, these crafts are also currently being subjected to the "rationalization" of standardized production methods and broken down into a number of narrower specialties. These narrower specialties become part of the routinized sector. Unions, by and large, are willing accomplices in fragmentation of jobs and establishment of hierarchy since it is consistant with a strategy of job protection.

16. Although in this sector expense account padding, use of company cars and phones for personal purposes, and other forms of pilferage are endemic, they are not as much of a threat to profits as similar actions in the primary subordinate market would be, both because there are fewer workers in this sector and because the potential contribution to profits of each employee in this sector is higher.

17. What we do not discuss in this paper is the role schools play in differential socialization to competence. That is, we do not discuss how schools in high SES areas differ from schools in low SES areas; how the former promote the attitudes and values and inculcate the skills that result in relatively large percentages of their students going on to college. Here we merely discuss how the structural/social relations of college correspond to those on nonroutinized jobs and how those of the lower grades correspond to relations on routinized jobs.

18. Paul Sweezy argues in his essay "Toward a Critique of Economics," Monthly Review, January 1970, that the underlying paradigm of orthodox economics, "takes the existing social order for granted, which means that it assumes, implicitly if not explicitly, that the capitalist system is permanent. Further, it assumes that within this system (a) the interests of individuals, groups, and classes are harmonious (or, if not harmonious, at least reconcilable); (b) tendencies to equilibrium exist and assert themselves

in the long run; and (c) change is and will continue to be gradual and adaptive."

19. See Andre Gorz, "Technical Intelligence and the Capitalist Division of Labor," Telos, No. 12, Summer 1972, pp. 27-41.

20. See Andre Gorz, "The Scientist as Worker," Liberation, May/June 1974, pp. 12-18.

21. The basic reason for the continued expansion of the educational system and the prolongation of schooling beyond the "needs" of the labor market is the use of schooling credentials to limit access to the most desirable jobs (of course on the other side school administrators, teachers, unions, and employees in the educational bureaucracy have lobbied intensely for expanded education). Given this fact, the only way to reduce the demand for schooling would be to cut the links between schooling credentials and high paying jobs or to increase the cost of higher education dramatically. Either "solution" would pose legitimation problems for society however.

    Martin Carnoy in his essay, "Class Analysis and Investment in Human Resources: A Dynamic Model," Review of Radical Political Economics, Vol. 3, No. 4, Fall 1971, pp. 56-81, analyzes how the role of a given level of schooling changes (i.e., from socialization-selection to socialization) as the average level of educational attainment of the population increases.

22. See Samuel Bowles, "The Integration of Higher Education in the Wage Labor System," Review of Radical Political Economics, Vol. 6, No. 1 Spring 1974, pp. 100-133.

23. Educational Requirements for Industrial Democracy project members are currently attempting to collect quantitative evidence on the extent of frustration among young overeducated workers. The Health, Education, and Welfare report, Work in America (Cambridge, Mass: MIT Press, 1973), provides suggestive, but not conclusive statistics on the relationship of job dissatisfaction to overeducation.

24. If there is a sharp decline in population growth, this may produce an offsetting reduction in the demand for such jobs. It would also reduce the supply of labor which management draws upon to fill jobs in the secondary labor market.

25. Industrial Democracy refers to forms of work organization which involve significant worker decision making and control over the organization of production extending potentially to affairs of the firm ranging from marketing to investment. For purposes of illustration, we can speak of a continuum of Industrial Democracy bounded at one end by the simple wage contract; at the other, by worker self management. An analysis of forms of work organization can be found in William Behn, "Classification of Work Organization," (Palo Alto, Cal., Center for Economic Studies, 1975) (mimeo) (forthcoming). See also Paul Blumberg, Industrial Democracy: The Sociology of Participation (New York: Schocken, 1969); Gerry Hunnius et al. Workers Control: A Reader on Labor and Social Change (New York: Vintage, 1973); and David Jenkins, Job Power (Baltimore: Penguin, 1974).